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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,701	10/15/2003	Joachim Tachtler	080437.52625US	4831

23911 7590 08/03/2006

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/684,701

Applicant(s)

TACHTLER ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/15/03</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Priority

1. This application is a continuation of PCT/EP02/03708, filed 04/03/02.
2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

3. The information disclosure statement filed 10/15/03 was considered by the examiner. Certain foreign documents have not been considered because they are unavailable. See Form 1449.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either an application data sheet or supplemental oath or declaration. Neither the declaration nor the application data sheet (ADS) specifically identify the residence of the inventors. It is noted that the ADS identify only the postal address.

Drawings

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "124" has been used to designate both the fuel gas and the residual air.

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Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "24" has been used to designate both the fuel gas and the waste air.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claims 1 and 11 recite the limitations "the waste gas" in lines 6 and 5, respectively.

There is insufficient antecedent basis for this limitation in the claim.

11. Claims 1 and 11 recite the limitations "the flow cell" in lines 7-8 and 7, respectively.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

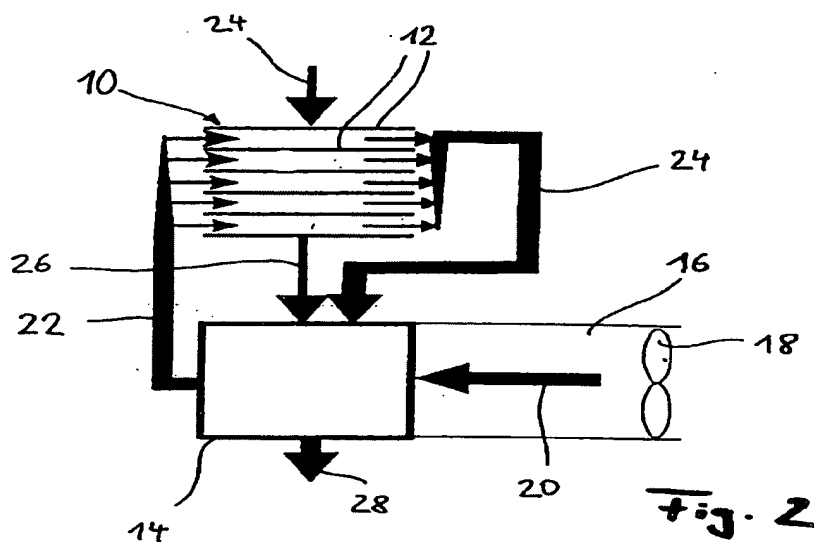
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-4, 6, 8-9, 11-14, 16 and 18-19 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Admitted Prior Art (heretofore '*the APA* ') (*as disclosed in paragraph 0009-0012 and illustrated in Figure 2 of Applicant's specification*).

The present application is geared toward a system wherein the disclosed inventive concept comprise the specific fuel cell and heat exchanger in combination.

As to claim 1 and 11:

The APA indicates that **Figure 2** below is conventional system comprising a fuel cell 10 and a heat exchanger/burner 14. Specifically, the heat exchanger/burner 14 is connected upstream of the fuel cell, to which air 20 is made available over a blower 18 in an intake port 16; air is heated as it flows through the heat exchanger 14. Also, heat exchanger/burner 14 receives fuel cell waste gases (exhaust) including unused reactants via line 24 (right hand side) (See applicant's specification, paragraphs 0009-0012 & FIGURE 2). *Thus, the heat exchanger/burner 14 meets the requirement of being directly integrated with the fuel cell, thereby allowing a direct flow transition from the heat exchanger/burner 14 to the fuel cell. The method for making the system is inherent because of the disclosed system.*



Examiner's note: the term "integrate" ("integrated"), as defined in the Merriam-Webster's Collegiate Dictionary 10th Edition, is defined as "to form, coordinate or blend into a functioning or unified whole", or "to incorporate into a larger unit". Therefore, it is contended that the APA shows how the heat exchanger/burner 14 and the fuel cell incorporate into a system or form a unified system. Note that the present claims are directed to "a system".

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As to claims 2 and 12:

The APA discloses the fuel cell stack comprising a plurality of individual cells 12 is supplied with both fuel gas 24 and air 20. Specifically arrows 22 and 24 illustrate respective air and fuel gas distribution to the fuel cell 10 (paragraphs 0010 and 0012 of applicant's specification & FIGURE 2).

As to claims 3, 8, 13 and 18:

The APA shows the use of air (paragraph 0010 of applicant's specification).

As to claims 4, 6, 9, 14, 16 and 19:

The APA further discloses that the heat exchanger 14 is constructed as a burner to that unconsumed reactants (air, fuel gas) can be subjected to an afterburning treatment therein (paragraph 0011 of applicant's specification).

Ipsso facto, the present claims are anticipated.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 5, 7, 10, 15, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (heretofore '*the APA*') (*as disclosed in paragraph 0009-0012 and illustrated in Figure 2 of Applicant's specification*) as applied to claims 1, 4, 9, 11, 14 and 19 above, and further in view of Buchner et al 2002/0009648.

The APA is applied, argued and incorporated herein for the reasons discussed in the preceding section. However, the APA fails to expressly disclose the specific plate heat exchanger.

Buchner et al disclose a fuel cell battery wherein a heat exchanger is structurally integrated into the fuel cell, so that the length of the heat transfer circuit is minimized and the use of external lines is avoided (ABSTRACT/ P.0010-0011, 0023, 0026-0027, 0030, 0034). Requirement of no external lines minimizes heat losses (P0038). The heat exchanger is a plate-type heat exchanger (P0012).

With these teachings, it would have been obvious to a person possessing a level of ordinary skill in the field of invention to use the specific plate heat exchanger of Buchner et al in the fuel cell system of the APA as Buchner et al teaches the use of a plate-type heat exchanger allows to design the heat exchanger by having similar dimensions and surface area to those of the fuel cell units of the fuel cell stack, thereby allowing the heat exchanger to be simply stacked thereon. Thus, the use of the specific plate heat exchanger improves structural incorporation thereof with the fuel cell. In addition to that, the integrated plate heat exchanger of Buchner et al

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minimizes the heat transfer circuit; and avoids the use of external lines, and hence, further minimizes heat losses. *Generally speaking, the teachings of Buchner et al are found to be fully pertinent to the APA and the field of applicant's endeavor because Buchner et al discuss and make known the concept of integrating a plate-type heat exchanger with a fuel cell. Therefore, Buchner et al not only teaches both the fuel cell and the heat exchanger, but it also teaches the harmonized suitability of integrating a fuel cell and a plate-type heat exchanger for achieving the structural benefits expressed above.*

Conclusion

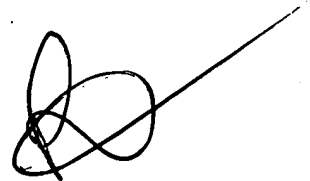
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond Alejandro
Primary Examiner
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A handwritten signature in black ink, consisting of a series of loops and a long diagonal stroke extending upwards and to the right.

**RAYMOND ALEJANDRO
PRIMARY EXAMINER**